

3-21-1996

# Washington University Record, March 21, 1996

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## Recommended Citation

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<http://digitalcommons.wustl.edu/record/718>

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## Applications for admission reach record of 11,255

From left: Jewell Parker, Mary Cissi, Theresa Hard and Mary Jo Farhatt, from the Office of Undergraduate Admission, pause to celebrate a record number of applications for this coming fall's freshman class.

## Lending a hand

### Men Active in the Community reaches out to young black males

Seniors Charles "Robbie" Brown Jr., John "J.D." Davis and Carlos R. Gant are extending a helping hand to young black men.

The students are charter members of a Washington University organization called Men Active in the Community (MAC), which was formed two years ago. The 15-member student group began as a collaborative effort between Brown and Gant, who both wanted to aid the community while conducting their studies here.

The duo also wanted to strengthen the extracurricular offerings for black male students on campus. "We wanted an informal group where we could share our ideas, experiences, and do things outside of class," said Brown, an architecture major and John B. Ervin Scholar. "Just like any other group of people, togetherness and collectiveness are characteristics of success for the African-American community. When African Americans are together, their strengths are multiplied.

"With our combined energy and power, we can extend that to African-American males in the community who might be looking for motivation. We want to instill in them confidence to pursue their goals,

education and overall good healthy lifestyles by having a sense of responsibility to their communities," Brown added.

To carry out their mission, some MAC members have met individually with black male students at Clayton High School. The group's future activities include planning a rhythm-and-blues benefit concert, tentatively slated for sometime in April in the Athletic Complex, and serving as "big brothers" to young black boys attending an after-school program at St. John's United Methodist Church in the Central West End.

In the high school's Mark Twain Learning Center, the Clayton students have discussed their future aspirations with MAC members.

"Some say they want to be music producers. They want to own their own businesses. They want to play sports," said Gant, an architecture major. "For those who want to play sports, for instance, instead of saying, 'Not many athletes make it to the big times,' we just say, 'What are you doing to make sure that you can beat the statistics?' It may be hard for them to pursue that particular goal, but at least look at what you have to do to

make your goals possible. The main thing I tell them is that 'after you do make it, remember to look back and help somebody else.' I'm just there trying to keep the cycle going."

Davis, a pre-medicine major, said MAC members relate well to the young men at Clayton because the high school students perceive them as peers. "We come from a level that is not so far from where they are. We come from the same backgrounds. Basically, we just got out of high school ourselves. Instead of them seeing someone on TV telling them what they should be doing, it's more beneficial for the messenger to be closer to them. That's what I was missing when I came up," said Davis, who attended Chicago public schools and is a 1992 graduate of the Illinois Mathematics and Science Academy in Aurora.

Brown is a 1992 graduate of Clayton High School. As MAC members pondered how to serve as mentors, Brown approached Gant about interacting with young black men at Clayton.

Brown's relationship with the Clayton school district began in the second grade

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## Jane Alexander to address graduates at Commencement

Jane Alexander, an award-winning actress and the chairman of the National Endowment for the Arts (NEA), will deliver Washington University's 135th Commencement address May 17. Alexander also will receive an honorary doctor of fine arts during the ceremony, which begins at 8:30 a.m. with the traditional academic procession into Brookings Quadrangle.

"We are thrilled that Ms. Alexander has accepted our invitation to speak to the graduates and their families and friends on this joyous occasion," said Chancellor Mark S. Wrighton, Ph.D. "She is an articulate and courageous leader of the National Endowment for the Arts, as well as an accomplished film and stage actor. I'm sure that her message will inspire our graduates to accept the challenges before them."



Joe Deal, dean of the School of Art, agrees. "I can't think of a better person to address a group of graduates," he said. "The arts contribute so much to world culture and to the betterment of human understanding. Jane Alexander's career, in acting and in her current role in public service, is a wonderful example for our students."

A native of Brookline, Mass., Alexander has been active in the arts for more than 35 years as an award-winning actress, producer and author. In addition to the 40 films and numerous TV programs in which she has appeared, Alexander has performed in more than 100 plays on stages across the country. She received a Tony Award for "The Great White Hope" and an Emmy Award for "Playing for Time." She has received six Tony nominations, four Academy Award nominations and five Emmy nominations. She also received the Television Critics Circle Award for her portrayal of Eleanor Roosevelt in "Eleanor and Franklin: The White House Years."

Alexander has produced three films, including the acclaimed "A Marriage: Georgia O'Keeffe and Alfred Stieglitz" for the Public Broadcasting Service's American Playhouse series. She has narrated numerous documentaries, short stories and books and is co-author of a translation of Henrik Ibsen's "The Master Builder," as well as "The Bluefish Cookbook."

President Clinton nominated Alexander in the summer of 1993 to become the NEA's sixth chairman. After unanimous

*Continued on back page*

## Chemist discovers new way to grow semiconductors

A Washington University chemist has discovered a new method for growing semiconductor crystals at temperatures far lower than ever reported.

The method is the first to use solution-phase chemistry to grow semiconductor crystals at lower temperatures. The semiconductor crystals made from the method are used in a variety of high-technology devices, ranging from cash register scanners to laser pointers to computer components.

The breakthrough offers intriguing possibilities for developing integrative devices consisting of semiconductor

crystals and polymers, plastics or composites. Present methods for growing semiconductor crystals prohibit combining other materials with the crystals because of the very high temperatures required to make the crystals.



William E. Buhro

Semiconductor crystals currently are made at temperatures between 500 degrees Celsius and 1,200 C.

But the method discovered by William E. Buhro, Ph.D., associate professor of chemistry in Arts and Sciences, allows crystal growth at 200 C.

Buhro and his Washington University research group reported their findings in a recent issue of Science magazine. Buhro calls his method the solution-liquid-solid (SLS) growth method. It is similar to a gas-phase method in use for 30 years called vapor-liquid-solid (VLS) growth method. Buhro and other materials chemists have been stymied by the non-molecular structures of the semiconductor

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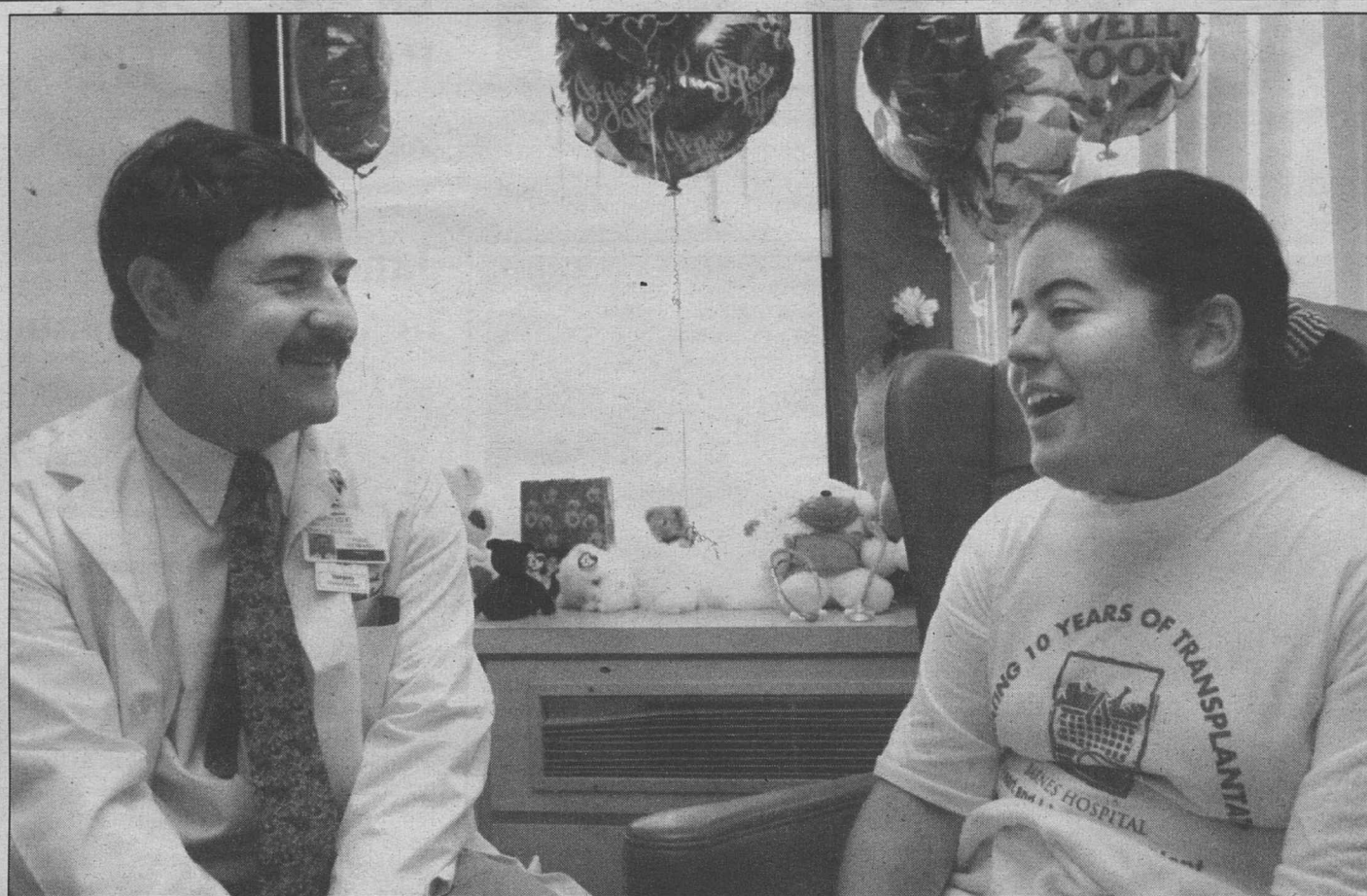
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Performing arts students to stage coming-of-age play at Seattle Fringe Theater Festival



# Medical Update



## Transplant patient on road to recovery

Todd K. Howard, M.D., assistant professor of surgery, talks with 19-year-old Veronica Sexton of Evansville, Ind. On March 7, Howard transplanted a donated liver into Sexton, whose own liver was destroyed by an infection with paramyxovirus. Howard directs the liver and kidney transplant programs at Barnes-Jewish Hospital.

## Rewiring words

### PET imaging reveals how brain functions, offers clues to recovery

Modern brain-imaging studies are giving scientists an extraordinary view of the brain at work and the opportunity to begin to understand how the brain recovers some function following an injury.

During the past decade, new tools have emerged in neuroscience that allow researchers to peer into the brain as a person speaks, reads or listens. During a seminar at the 1996 annual meeting of the American Association for the Advancement of Science (AAAS) in Baltimore, neuroscientists explored these powerful technologies and the insights they are yielding. The seminar, "Neuroscience and Technology," was led by Marcus E. Raichle, M.D., a leader in the field of PET (positron emission tomography) imaging and professor of radiology, of neurology and of anatomy and neurobiology at the School of Medicine.

By using PET, Raichle and colleagues have demonstrated which areas of the brain are devoted to certain types of speech, memory and word processing. PET scans use radioactive isotopes to identify brain cells that are most active during certain tasks. The scans tell researchers which part of the brain suddenly starts working when a person reads, hears or speaks a word, for example.

PET scans of brains in normal patients now are paving the way to the understanding of how the brain rewires itself to recover some function following an injury, said Steven E. Petersen, Ph.D., associate professor of neurology and one of Raichle's collaborators. During the AAAS seminar, Petersen described PET's role in pinpointing compensatory brain pathways following a stroke.

In the past, researchers have reasoned that if a patient with a brain injury can't perform certain speech tasks, then the damaged area, in some way, contributes to the lost speech function. Unfortunately, Petersen noted, this approach doesn't allow researchers to directly determine how the brain might be compensating for any lost function. Recently, Petersen, Raichle and their colleagues developed a method for using PET to study how the brain compensates following a permanent injury.

Their work eventually may lead to ways to encourage the brain to rewire itself so a stroke patient might regain some function.

"I think accumulation of this type of information is going to be important for rehabilitating people in the future and for helping patients take advantage of the parts of the brain that function after injury," Petersen said.

In the study, the researchers evaluated a 72-year-old stroke patient with damage



Steven E. Petersen

confined to the brain's left prefrontal cortex. The man could respond to simple questions but initiated little spontaneous conversation. Though he could repeat words, read words and name most objects, he had difficulties with most complex speech-production tasks. These complex tasks typically activate the left prefrontal cortex, the same area of the brain damaged by the patient's stroke. However, the patient could say words when he was given a portion of the word as a clue, a task called word-stem completion, which also activates the left prefrontal cortex.

For example, he could not generate a verb, such as fly, when given the noun airplane, or vice versa. He also couldn't generate synonyms, opposites or rhymes. However, if the patient was given a partial word as a clue, he could say the full word. For example, given "cou-" or "hou-" he could say couple or house.

"This was surprising because normal patients activate the left prefrontal cortex while performing this task," Petersen said. "This suggested to us that the patient was

performing the task using a compensatory brain pathway."

When the researchers performed PET scans on the patient as he performed the word-stem completion task, they found that it activated the right prefrontal cortex.

The researchers compared the patient's PET scans with those they previously had performed on 16 normal patients. In the normal patients, the word-stem completion task did not activate the right prefrontal cortex. "This area is not typically activated by normal patients performing word-stem completion, and it appears to be used by this stroke patient to compensate for his damaged cortex," Petersen explained.

Their results, Petersen said, may help explain why stroke patients lose some, but not all, language skills. Petersen said their approach can be used to study recovery of speech function in other patients with brain injuries. By documenting preserved speech function in patients, scientists can find other compensatory brain pathways, which likely will vary from patient to patient.

Petersen noted that PET imaging can play an important role in deciphering speech production in normal patients, demonstrating the effects of injury on the brain and finding pathways to recovery.

"Maybe by understanding at a detailed level other ways the brain has of producing speech, you may eventually be able to find ways to encourage patients to use compensatory pathways," he said.

The work was funded by grants from the National Institutes of Health, the Charles A. Dana Foundation and Washington University's McDonnell Center for Higher Brain Function.

— Caroline Decker

## High school students learn about anatomy

The School of Medicine and the St. Louis City/County School Partnership Program hosted area high school students March 2 to give them an opportunity to study anatomy.

As part of the Saturday Scholars program, students from city and county high schools studied anatomical features of the human cadaver under the direction of fourth-year School of Medicine students and Richard W. Brand, D.D.S.,

adjunct professor of anatomy and assistant dean for admissions and student affairs. The Saturday Scholars program now is in its 12th year.

Students in the program were selected by their teachers. Students from the following high schools attended: Central Visual and Performing Arts, Gateway Institute of Technology, Vashon, Lindbergh, Parkway West and University City.

## Non-drug therapy helps depressed heart patients

School of Medicine investigators report that depression can be treated successfully with psychotherapy in patients with coronary artery disease or related heart problems.

In a March 9 presentation at the annual meeting of the American Psychosomatic Society in Williamsburg, Va., the researchers reported that cognitive behavior therapy (CBT) appears to be as effective in heart patients as in healthy people. They are the first to test CBT for depression in cardiac patients.

"Depression is a very serious problem for people who have heart disease," explained Kenneth E. Freedland, Ph.D., lead investigator and associate professor of medical psychology in psychiatry.

Unfortunately, Freedland said, many heart patients never are diagnosed as depressed. "Because they are often so sick, symptoms of depression can be mistaken for manifestations of heart disease," he explained. "Not only does depression make people feel sad, but if left untreated, it increases their risk of a serious heart attack."

Anti-depressant medications are helpful, but they must be used carefully in patients with heart disease. Some cannot tolerate the drugs, and others prefer not to take them. So Freedland said it is important to find alternative therapies such as CBT.

Freedland and Robert M. Carney, Ph.D., professor of medical psychology in psychiatry, treated 23 depressed patients with a 16-week course of CBT. Each week, patients were asked to complete a questionnaire that measures depression. Of those who completed the therapy, all were rated as non-depressed when measured by the questionnaire, called the Beck Depression Inventory (BDI). In patients still undergoing treatment, BDI numbers declined, meaning their depression improved.

"This is a small sample, and a larger, controlled study is needed before we can say the therapy is truly effective," Freedland noted. But the results look promising, and the payoff could be big. "We hope to learn whether treating depression actually lowers the risk of heart attack and premature death in these patients. That's still an open question," he added.

— Jim Dryden

## Record

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Record (USPS 600-430; ISSN 1043-0520), Volume 20, Number 24/March 21, 1996. Published for the faculty, staff and friends of Washington University. Produced weekly during the school year, except school holidays, and monthly during June, July and August by the Office of Public Affairs, Washington University, Campus Box 1070, One Brookings Drive, St. Louis, Mo. 63130. Second-class postage paid at St. Louis, Mo.

Address changes and corrections:

Postmaster and non-employees: Send to Record, Washington University, Campus Box 1070, One Brookings Drive, St. Louis, Mo. 63130.

Hilltop Campus employees: Send to Office of Human Resources, Washington University, Campus Box 1184, One Brookings Drive, St. Louis, Mo. 63130.

Medical Campus Employees: Send to Payroll Office, Washington University, Campus Box 8017, 660 S. Euclid, St. Louis, Mo. 63110.

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# Washington People

## Physicist Miller teaches from the heart

James G. Miller, Ph.D., considers himself a lucky guy. Sitting in his Compton Hall office recently, the experimental physicist had just begun to describe his research to a visitor when he suddenly stopped, turned in his chair, pointed to four computer-controlled ultrasonic instruments sitting on a cart behind him, and said, "You know, what a picnic — somebody pays me to play with all these wonderful toys!"

His enthusiasm for his work goes beyond his hands-on research, which focuses on advancing ultrasound as a cardiology diagnostic tool. He speaks with just as much excitement when he discusses teaching undergraduates in his "Physics of the Heart" class. "I put a lot of time into it," he said in reference to the course he developed 20 years ago, "and I love every minute of it. The students are some of the brightest people you could ever meet. I really consider it a privilege to teach here."

Miller, a professor of physics in Arts and Sciences, also is a research professor of medicine at the School of Medicine — an unusual joint appointment considering that the two fields are so different. More unusual is the fact that Miller knows his way around an operating room just as well as he knows what's what in a physics lab.

How did Miller, a traditionally educated physicist, become a research partner with cardiologists at the medical school? It started with a telephone call. As a new faculty member in the Department of Physics after having received a doctorate in 1969 from Washington University, Miller began to explore the concept of using ultrasound in areas involving biology and medicine.

Meanwhile, over at the medical school, Richard E. Clark, M.D., a cardiothoracic surgeon, had heard that ultrasound could be a useful tool in determining whether blood returning to patients during cardiothoracic surgery contained harmful microemboli. Clark called the physics department's Laboratory for Ultrasonics for some advice.

Next thing Miller knew, he was in surgical scrubs watching a device he developed — a kind of ultrasonic alarm system — monitor blood returning to a patient from a heart-lung machine during open-heart surgery.

This was the first milestone resulting from a collaboration that has lasted more than 20 years. The researchers on both campuses saw great potential in using ultrasound to look into the body non-invasively — without ionizing radiation or pain and discomfort to the patient.

Miller said then that the best way they could make a truly fundamental contribution to advancing the use of ultrasound as a diagnostic tool was by first understanding the physics, physiology and pathophysiology of the heart. "I knew we had to look beyond just making a better picture of the heart. That was going to be useful, but the real contribution started with understanding how the heart really functions and then extending that," Miller said.

Washington University's team of cardiologists and physicists did just that, Miller said, when they pioneered myocardial ultrasonic tissue characterization. Through a non-invasive procedure, this technique allows physicians not only to see an image of the heart but also to see if the heart is diseased. For example, the procedure can show if the heart is getting enough blood. An image of even a diseased heart can look quite normal, but a tissue characterization of the same heart can reveal the effects of whatever damage has occurred and can help physicians determine proper treatment, such as angioplasty.

### Research earns high marks

Based upon the research and discoveries of Miller and his colleagues — including Julio E. Perez, M.D., professor of medicine and director of cardiac echocardiography at the School of Medicine — Hewlett-Packard Co. in recent years has developed two diagnostic tools that are used in hospitals worldwide to make accurate measurements of cardiac function.

Two other products Miller and members of his team developed early in their research earned them *Industrial Research* magazine's highly coveted I-R 100 awards — referred to by some as the Nobel Prizes of industry. His ultrasonic instrument for monitoring microscopic par-

ticles in patients' blood during open-heart surgery was cited as one of the 100 most significant new technical products of 1974. The other I-R award, presented in 1978, recognized an acoustoelectric transducer system.

Samuel A. Wickline, M.D., an associate professor of medicine who has worked closely with Miller for more than 10 years, credits the physicist with speeding the progress of their research. "His ability to speak more than one scientific language — that is, medicine, physics and engineering — that cross fertilization, is why we do so well in the lab," Wickline said. "When you have someone who can serve as the translator for these seemingly disparate disciplines, that's when you make progress."



James G. Miller, Ph.D., believes students like Becky Trousil, center, and Erika Eggers, right, should experience hands-on laboratory work.

### "There's no substitute for learning with your hands and mind together."

"It's fashionable today to talk about multidisciplinary work, but this is what's been going on for the last 20-plus years because of Jim. Most in medicine are intimidated by physics and engineering. His ability to communicate in a simple and relevant way makes it easy for us to interact with him and his colleagues. He's enabled us to tackle problems and make progress at a faster clip because we weren't isolated," Wickline added.

Miller's ultrasound research isn't limited to medical applications. Director of the Laboratory for Ultrasonics since 1987, Miller and other members of the physics department also are using ultrasound to study, among other things, the mechanical properties of high-performance materials used in aircraft and spacecraft. The research group collaborates with such companies as McDonnell Douglas Corp., as well as with the NASA-Langley Research Center, to help develop and test lightweight, high-strength materials that can withstand the stress of air and space travel.

Miller has been working with hands-on, "technologically interesting" things his whole life. He got his first amateur ham radio operator license in the sixth grade. Neither his mother, an immigrant from Ireland, nor his father, a native St. Louisan who routed trains, had the opportunity to begin high school, but both encouraged their son to attend college. Miller received a bachelor's degree in physics, summa cum laude, in 1964 from Saint Louis University and master's and doctoral degrees in physics in 1966 and 1969 from Washington University. While in graduate school here, he pursued theoretical physics but soon realized he was too far removed from doing what he's loved since childhood. "Experimentalists were in the lab twisting knobs and making measurements, and I was sitting at a desk; the frustration level was just too high," he said.

Miller began getting paid for "playing" with things at a fairly young age. When he was 12, he and a friend started a business, complete with business cards, called "Mitchell and Miller Radio and TV Repair" in their north St. Louis neighborhood.

"We actually did very well," Miller said. "We had all of the neighborhood business and probably succeeded in repairing about three-fourths of what came to us. About one-fourth was beyond us, and we would apologize and bring it back." Profits basically went back into the business to purchase equipment. The two kept the repair business going until other obligations as upperclassmen in high school forced them to close shop.

He believes that having had that hands-on experience was an asset when he started college, and he believes it's vitally important for his students today.

"There's no substitute for learning with your hands and mind together," he said. "If there were any way that I

would like to improve the education of scientists and engineers, it is to put even more emphasis on hands-on laboratory work as part of the educational process. It's expensive because you need a lot more equipment. It's time-expensive because you have to have almost one-on-one or very small group teaching. But the level of education is far better than somebody standing at a blackboard and drawing things and talking."

Miller practices what he preaches. As an adviser to about 20 doctoral students over the years, he's made sure they've all had practical "get-your-hands-dirty" experiences. Whether working with a machinist in the physics department's machine shop designing and building an ultrasonic scanning device or making the rounds with a cardiologist at Barnes-Jewish Hospital, his

graduate students are learning by doing.

Another teaching tool Miller initiated for the graduate students in his research group is a get-together from 9:30 a.m. to 3 p.m. every Thursday to discuss what the students as well as senior members of the team — including cardiologists from the medical school — have accomplished the previous week. In addition, the group of about 15 gets together every Monday night to hear a 60-minute lecture from a team member, followed by 30 minutes discussing the latest in instrumentation.

### Dedicated to undergraduate, graduate students

His graduate students are not the only ones to whom he devotes so much time and attention. Because of his desire to share his research activities with undergraduates, he introduced "Physics of the Heart" in 1976.

Taken primarily by pre-medicine undergraduates with some physics and engineering students enrolled, the course teaches cardiovascular physiology within the context of physics. Miller said the students already have had first-year physics in which they've learned the basic tools but not, however, the implications of physical laws in the biological and medical sciences.

Miller, who received the 1989 Faculty Teaching Award from the Council of Students of Arts and Sciences, said he builds on that demanding introductory course to help the students see firsthand how physics is relevant to what they will be doing in medicine.

Wickline, who along with others from the medical school serves as a guest lecturer in "Physics of the Heart," wishes he had such a course when he was in school. "I think Jim is one of the finest examples I've come across of someone who can make difficult, potentially dry material both easy and relevant," Wickline said.

Tom Shoup, Ph.D., a former graduate student of Miller's who is a research manager at Hewlett-Packard Laboratories, agrees. "When Jim teaches, he broaches a subject in very practical terms as opposed to very theoretical terms," Shoup said. Recalling how Miller used a tangerine to demonstrate how forces are measured in newtons, Shoup said, "You'd go away from his class with an understanding that was couched in terms and descriptions very familiar to you."

Miller doesn't believe he's doing anything extraordinary — just fulfilling the role of a professor. "Our education gives us the opportunity to do cutting-edge work and then to communicate it across boundaries because it's not so difficult to communicate to the person next door or down the hall; what is difficult is to communicate to a broader audience," he said. — Susan Killenberg



# Calendar

March 21-30



## Exhibitions

**"First-year M.F.A. Student Exhibit."** Through April 5. 7511 Forsyth Blvd. Hours: noon-5 p.m. Mondays-Thursdays; noon-6:30 p.m. Fridays; noon-4 p.m. Saturdays; and 2-4 p.m. Sundays. 935-4761.

**"Lifting the Veil: Robert S. Duncanson and the Emergence of the African-American Artist."** Through March. Gallery of Art, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. 935-5490.

**"The Stanley Elkin Show."** Through June 15. Special Collections, Olin Library, Level Five. Hours: 8:30 a.m.-5 p.m. weekdays. 935-5495.

**"Currents 66."** Paintings and collages by Michael Byron, artist-in-residence in the School of Art. Opens March 26. Gallery 337, Saint Louis Art Museum. 721-0072 (ext. 257 or 258).



## Films

All Filmboard movies cost \$3 and are shown in Room 100 Brown Hall. For 24-hour hotline information, call 935-5983.

### Thursday, March 21

**7:30 p.m. French Film Series.** "Rififi" (1955), with English subtitles. Room 162 McDonnell Hall. 726-1565.

### Friday, March 22

**4 p.m. Contemporary American Documentary Film Series.** "Black Is...Black Ain't" (1994). Room 149 McMillan Hall. 935-5216.

**7 and 9:30 p.m. Filmboard.** "The Usual Suspects" (1995). (Also March 23, same times, and March 24 at 7 p.m.)

**Midnight. Filmboard.** "Red Sonja" (1985). (Also March 23, same time, and March 24 at 9:30 p.m.)

### Monday, March 25

**8 p.m. Filmboard.** "The Gospel According to Matthew" (1964, B&W), in Italian with English subtitles. (Also March 26, same time.)

### Tuesday, March 26

**7 p.m. Japanese Film Series.** "A Taxing Woman Returns" (1989), with English subtitles. Room 219 South Ridgley Hall. 935-5110.

### Thursday, March 28

**7:30 p.m. French Film Series.** "Oublie-Moi" (1995), with English subtitles. Room 162 McDonnell Hall. 726-1565.

### Friday, March 29

**7 and 9:30 p.m. Filmboard.** "Purple Rain" (1984), starring Prince. (Also March 30, same times.)

**Midnight. Filmboard.** "Breakin'" (1984). (Also March 30, same time.)



## Lectures

### Thursday, March 21

**11:15 a.m. Social work lecture.** "Research on Predicting Use of Mental Health Ser-

vices: Use of the Andersen Model," Arlene R. Stiffman, assoc. prof. of social work. Room 353 West Campus Conference Center. 935-5741.

**1 p.m. Vision science seminar.** "RPE Transplantation: What In Vivo and In Vitro Studies Tell Us," Lucian Del Priore, asst. prof. of ophthalmology and visual sciences and of biochemistry and molecular biophysics. East Pavilion Aud., Barnes Hospital. 362-3726.

**2:30 p.m. Mechanical engineering seminar.** "Discrete-time Analysis and Control of Periodic Dynamical Systems," Henryk Flashner, prof. of mechanical engineering, U. of Southern California, Los Angeles. Room 100 Cupples II Hall. 935-6055.

**3 p.m. Physics/chemistry seminar.** "Heavy-ion Reaction Dynamics," Pawel Danielewicz, Michigan State U., East Lansing. Room 241 Compton Hall. 935-6530.

**3:30 p.m. Chemistry seminar.** "Lessons From the Immune System: From Catalysis to Materials," Peter Schultz, prof. of chemistry, U. of California, Berkeley, and investigator, Howard Hughes Medical Institute. Room 458 Louderman Hall. 935-6530.

**4 p.m. Anesthesiology Grand Rounds.** Eighth annual C.R. Stephen Lecture. "An Expanded View of Human Memory Systems," Marcus Raichle, prof. of radiology, of neurology and of anatomy and neurobiology. Moore Aud., 660 S. Euclid Ave. 362-6978.

**4 p.m. Biology and biomedical sciences seminar.** "Molecular Mechanisms of Neurotransmitter Secretion: A Functional View," George J. Augustine, prof. of neurobiology, Duke U. Medical Center. Cori Aud., 4565 McKinley Ave. 362-3364.

**4 p.m. Women's studies lecture.** "Richard Wright, Simone de Beauvoir and the Second Sex," Margaret Simons, prof. of philosophic studies, Southern Illinois U.-Edwardsville. Women's Bldg. Lounge. 935-5102.

**4:15 p.m. Philosophy-neuroscience-psychology colloquium.** "How Can I Miss You If You Won't Go Away?: The Real Reason Why We Represent Reality," Brian C. Smith, principal scientist, Xerox Palo Alto Research Center, and adjunct prof. of philosophy, Stanford U. Room 110 January Hall. 862-7549.

**6 p.m. Social work lecture.** "Solution-focused Practice for Work With At-risk Families," Nancy Vosler, assoc. prof. of social work, and Ellen Burkemper, registered nurse and adjunct faculty member. Brown Hall Lounge. 935-6678.

### Friday, March 22

**9:15 a.m. Pediatric Grand Rounds.** "Inherited Cardiomyopathies: Molecular Determinants of Clinical Expression," Daniel P. Kelly, assoc. prof. of medicine and asst. prof. of molecular biology and pharmacology. Clopton Aud., 4950 Children's Place. 454-6128.

**Noon. Cell biology and physiology seminar.** "Lysosomal Enzyme Phosphorylation—Insights From DNase 1," Stuart Kornfeld, prof. of biochemistry and molecular biophysics and of medicine. Room 426 McDonnell Medical Sciences Bldg. 362-6950.

**1 p.m. Solid-state physics/applied physics seminar.** "A Model for Predicting Ohmic Heating in Magnetoresistive Read-Heads," Albrecht Jander, graduate student in electrical engineering. Room 305 Bryan Hall. 935-5565.

**4 p.m. Biology seminar.** "Developmental Regulatory Mechanisms and the Evolution of Animal Body Patterns," Sean B. Carroll, Howard Hughes Medical Institute Research Laboratories, U. of Wisconsin, Madison. Room 162 McDonnell Medical Sciences Bldg. (Informal buffet and discussion will follow in Rooms 361 and 362.) 935-6860.

### Monday, March 25

**Noon. Molecular microbiology seminar.** "Mechanism of RNA Editing in Trypanosome Mitochondria," Steve Hadjuk, prof. of biochemistry and molecular genetics, U. of Alabama, Birmingham. Room 775 McDonnell Medical Sciences Bldg. 362-7258.

**4 p.m. Biology seminar.** "Evolution of Flower Polymorphisms in Morning Glory," Michael Clegg, dean, College of Natural and Agricultural Sciences, U. of California, Riverside. Room 162 McDonnell Hall. (An informal discussion will follow.) 935-6860.

**4 p.m. Immunology seminar.** "Progress Report on Peptide Selection by MHC Class

II Proteins," Emil Unanue, the Edward Mallinckrodt Professor and chair, Dept. of Pathology. Third Floor Aud., St. Louis Children's Hospital. 352-8748.

**4 p.m. Math seminar.** Wavelet, Transference and What Not Seminar. "An Overview of Phi- and Psi-transforms," Jonathan Corbett, National Need Fellow in Mathematics. Room 199 Cupples I Hall. 935-6726.

**4 p.m. Psychology colloquium.** "Eye Movements and Visual Attention," Richard Abrams, assoc. prof. of psychology. Room 216, new psychology bldg. 935-6565.

### Tuesday, March 26

**Noon. Molecular microbiology/microbial pathogenesis seminar.** "Killing of African Trypanosomes by Human High Density Lipoprotein," Steve Hadjuk, prof. of biochemistry and molecular genetics, U. of Alabama, Birmingham. Cori Aud., 4565 McKinley Ave. 362-7258.

**4 p.m. Anthropology colloquium.** "Biological Evolution in the European Upper Paleolithic," Betsy Schumann, visiting asst. prof. of anthropology. Room 149 McMillan Hall. 935-5252.

**4 p.m. Diabetes research seminar.** "CD4+ T-cells in IDDM," Johathan Katz, asst. prof. of pathology. Pathology Library, Room 3723 West Bldg. 362-7435.

**7 p.m. Women's Midlife Fan Club seminar/discussion.** "Introduction to Menopause," Joyce Hogue, registered nurse, Women's Education Service. Barnes-Jewish West County Hospital Physicians Office Bldg., 12634 Olive Blvd. 362-6667.

### Wednesday, March 27

**6:30 a.m. Anesthesiology Grand Rounds.** "Pediatric Airway Management," Charles Schrock, pediatrics fellow. Wohl Aud., 4960 Children's Place. 362-6978.

**8 a.m. Obstetrics and Gynecology Grand Rounds.** "Thyroid Disease and Pregnancy," Stuart Adler, asst. prof. of obstetrics and gynecology. Clopton Aud., 4950 Children's Place. 454-7886.

**11 a.m. Assembly Series lecture.** "Recalling the Outrageous, Contagious Courage of Women," Mary Daly, assoc. prof. of theology, Boston College. Graham Chapel. (See story, page 6.) 935-5285.

**4 p.m. Biochemistry and molecular biophysics seminar.** "Hemoglobin Allosteric and Monod's '2nd Secret of Life': Where Do We Stand in 1996," Gary K. Ackers, Wittcoff Professor and head, Dept. of Biochemistry and Molecular Biophysics. Cori Aud., 4565 McKinley Ave. 362-0261.

**4 p.m. Performing Arts Dept./physics colloquium.** "The Physics of Dance," Kenneth Laws, prof. of physics, Dickinson College, Carlisle, Pa. Edison Theatre. 935-5858.

**4 p.m. Russian lecture.** "Bakhtin and Dostoevsky: Centennial Reflections," Caryl Emerson, prof. of Slavic languages and literatures and of comparative literature, Princeton U. Women's Bldg. Lounge. 935-5177.

### Thursday, March 28

**1 p.m. Vision science seminar.** "Cell Cycle Control During Induction of Differentiation in the Lens," Paul Overbeek, assoc. prof. of cell biology, Baylor College of Medicine, Houston. East Pavilion Aud., Barnes Hospital. 362-3726.

**1:10 p.m. Social work lecture.** "The Social Work Agenda in a Republican Congress," Jay Cayner, president, National Association of Social Workers. Brown Hall Lounge. 935-6600.

**4 p.m. Assembly Series lecture.** The John and Penelope Biggs Residency in the Classics. "Compassion in Public Life," Martha Nussbaum, prof. of law and ethics, U. of Chicago. Graham Chapel. (See story, page 6.) 935-5285.

**4 p.m. Biology seminar.** "Obligate Symbiosis and Population Regulation of a Tree-hole Damsel," Ola Fincke, visiting assoc. prof., Dept. of Zoology, U. of Oklahoma, Norman. Room 322 Rebstock Hall. 935-6860.

**4 p.m. Biology and biomedical sciences seminar.** "Molecular Mechanisms of Membrane Trafficking," Richard H. Scheller, prof. of molecular and cellular physiology, Stanford U. and Howard Hughes Medical Institute. Cori Aud., 4565 McKinley Ave. 362-3364.

**7 p.m. Town meeting.** "The Importance of Dental and Eye Care for Persons With HIV,"

Adam Berger, asst. prof. of ophthalmology and visual sciences, and Denzel Jines, private practice dentist in St. Louis. Erlanger Aud., McDonnell Medical Sciences Bldg. 362-2418.

**7 p.m. Jewish and Near Eastern studies lecture.** The Adam Cherrick Fund for Jewish Studies. "Between Zionism and Judaism: Israeli Identity and Diaspora Jewry," Pnina Lahav, prof. of law, Boston U. Hurst Lounge, Room 201 Duncker Hall. 935-8567.

### Friday, March 29

**9:15 a.m. Pediatric Grand Rounds.** "Chicken Pox: Help Make Prevention a Priority," Ann Gershon, prof. of pediatrics and director, Division of Infectious Disease, Columbia U., New York. Clopton Aud., 4950 Children's Place. 454-6128.

**Noon. Cell biology and physiology seminar.** "Calcium Sparks: Local Calcium Signaling in Muscle," John Lederer, Dept. of Physiology, U. of Maryland School of Medicine. Room 426 McDonnell Medical Sciences Bldg. 362-6950.

**Noon. Environmental engineering seminar.** "Interim Remedial Measures at a Former Manufactured Gas Plant," Darrel Wolff, program manager, Philip Environmental Services Corp., St. Louis. Room 216 Urbauer Hall. 935-8590.

**1 p.m. Solid-state engineering/applied physics seminar.** "Track-edge Noise in Magnetic-memory Recording," E. Glavinas, electrical engineering graduate student. Room 305 Bryan Hall. 935-5565.

**3:15 p.m. Philosophy lecture.** "Nonconceptual Content, Singular Reference and the Sense/Reference Distinction," Adrian Cussins, prof. of philosophy, U. of California, San Diego. Stix International House. 935-7148.



## Music

### Tuesday, March 26

**8 p.m. Dept. of Music student recital.** Featuring the works of Beethoven and Mozart. Graham Chapel. 935-5581.



## Performances

### Tuesday, March 26

**7 p.m. Radio play.** The late Stanley Elkin's "The Coffee Room," in celebration of the WU Libraries' 3 millionth acquisition. Edison Theatre. 935-5400.

### Thursday, March 28

**8 p.m. Jewish theater performance.** The Jewish Theatre Group will present "Fools," a Neil Simon comedy. (Also March 30, same time, and March 31 at 2 and 8 p.m.) Hillel Center, 6300 Forsyth Blvd. Cost: \$6 for the general public and \$3 for WU faculty, staff and students. 726-6177.

### Friday, March 29

**6:45 p.m. Performing Arts Dept. performance.** Scenes from "Romeo and Juliet" will be presented in The Library, Ltd.'s Curtain Up series. Director Henry Schvey, chair, Performing Arts Dept., will discuss the work. The Library, Ltd., 7700 Forsyth Blvd. (See story, page 5.) 935-5858.

**7:30 p.m. Edison Theatre's "OVATIONS!"** series presents fiddle virtuosos Mark O'Connor and Vassar Clements in a concert of bluegrass, country, jazz, rock and swing tunes at The Sheldon Concert Hall, 3648 Washington Ave. Cost: \$25 and \$22 for the general public; balcony tickets are \$20 for senior citizens and \$15 for WU students. (See story, page 5.) 935-6543.



**8 p.m. Performing Arts Dept. dance concert.** "A Choreographic Journey," choreographed by Tâm Lê, honors senior, Performing Arts Dept. (Also March 30, same time.) Dance Studio, Room 207 Mallinckrodt Center. 645-8548.



## Miscellany

### Thursday, March 21

**8 a.m. Continuing Medical Education conference.** "Clinical Pulmonary Update." Continues through March 22. Eric P. Newman Education Center. For more info. and to register, call 362-6893.

### Saturday, March 23

**1-4:30 p.m. Research symposium.** "The First Annual Graduate Research Symposium." Current research by graduate students in Arts and Sciences will be presented in poster format. Sponsored by the Graduate Student Senate. Takes place in various locations in McDonnell Hall. 362-8721.

### Monday, March 25

**Noon. Newcomer's brown-bag luncheon.** Performing Arts Dept. students will perform excerpts from "Romeo and Juliet." Sponsored by the Woman's Club. Women's Bldg. Lounge. Dessert and coffee will be provided. Call 863-0523 or 997-4180 to make reservations.

## 'Romeo and Juliet' events scheduled

The Performing Arts Department in Arts and Sciences will celebrate the 400th anniversary of William Shakespeare's "Romeo and Juliet" with several special events this month and next.

The department will stage the romantic tragedy April 12-14 and 19-21 in Edison Theatre. Henry I. Schvey, Ph.D., professor of drama and of comparative literature in Arts and Sciences and chair of the Performing Arts Department, will direct the production.

The following events have been scheduled in conjunction with "Romeo and Juliet":

- March 29: From 6:45 to 7:45 p.m., actors will perform scenes from the play in the Curtain Up series at The Library, Ltd. bookstore, 7700 Forsyth Blvd., in Clayton. Afterward, Schvey will discuss

### Thursday, March 28

**4 p.m. American culture studies book discussion group.** "Between God and Gangsta Rap: Bearing Witness to Black Culture," by Michael Eric Dyson. Discussion led by Donald Matthews, postdoctoral fellow, African and Afro-American studies. Room 317 McMillan Hall. 935-5216.

### Friday, March 29

**1 p.m. Symposium on German literature.** "Zeitenwenden/Wendezeiten: A Half-century of German Literature, 1945-1995" features writers and scholars from the United States, Germany and Austria. Continues through March 31. (See story, page 6.) 935-5106.

### Saturday, March 30

**9:15 a.m.-5 p.m. Domestic violence symposium.** "The Medical Aspects of Domestic Violence." Keynote speaker is Robert L. Muellemann, Dept. of Emergency Medicine, Truman Medical Center, Kansas City, Mo. Moore Aud., 660 S. Euclid Ave. To register, call 362-8541.

**10 a.m.-noon. Benefit road walk/race.** Runners and walkers are invited to join the Thurtene Throng Five Kilometer Road Race/Walk. Proceeds benefit St. Louis Transitional Hope House Inc. Begins at Bates Memorial in Forest Park, at the north end of Fine Arts Drive past the Saint Louis Art Museum. Race packet pick-up begins at 8:30 a.m. Cost: \$10 for pre-registration; \$12 for registration on race day. For more info. and to register, call 935-6683.

**10 a.m.-6 p.m. Acting workshop.** "Acting on Film," a two-day workshop by Tony Barr, author of "Acting for the Camera." Continues 11 a.m.-7 p.m. March 31. Class limited to 20 participants. Room 325 Mallinckrodt Center. Cost: \$235. (See story, this page.) For more info. and to register, call 647-3758.

the work. For more information about the Curtain Up series, call 727-8834.

- April 2: At 7:30 p.m., actors will perform scenes from the play in the Saint Louis Art Museum Auditorium, and Schvey will discuss the work.

- April 9: At noon, actors will perform scenes from "Romeo and Juliet" in Edison Theatre at a brown-bag lunch seminar, and Schvey will discuss the work.

Curtain times for "Romeo and Juliet" are 8 p.m. April 12, 13, 19 and 20 and 2 p.m. April 14 and 21. Tickets are \$8 for the general public and \$6 for senior citizens and Washington University faculty, staff and students. Tickets are available at the Edison Theatre box office (935-6543).

For more information about the production or related events, call 935-5858.

## Fiddles to soar in 'OVATIONS!' concert

The humble fiddle will soar to musical heights when two of the world's greatest fiddle virtuosos join forces in a concert at 7:30 p.m. March 29 at The Sheldon Concert Hall, 3648 Washington Ave., in St. Louis.

Fiddle greats Mark O'Connor and Vassar Clements will finger their way through an eclectic evening of country, bluegrass, jazz, rock and swing tunes. The concert is part of Edison Theatre's "OVATIONS!" series and is co-sponsored by The Sheldon Concert Hall.

O'Connor has been hailed as one of the greatest fiddling virtuosos to take the stage. Four times in this decade he has been named the Country Music Association's "Musician of the Year."

## Former CBS executive leads acting workshop

Tony Barr, former vice president of CBS Entertainment and a Washington University alumnus, will teach a two-day workshop March 30 and 31 titled "Acting on Film."

The workshop will take place from 10 a.m. to 6 p.m. March 30 and from 11 a.m. to 7 p.m. March 31 in Room 325 Mallinckrodt Center. The class is limited to 20 participants. The cost is \$235 per person.

Participants will be assigned a two-character scene to be prepared in advance of the workshop. The first day will focus on acting exercises and rehearsal techniques. The second day will be devoted to filming and critiquing each scene.

"The actors can see what is working

and what's not," Barr said of the filming that will use two cameras for close-up and broad shots.

Barr is the author of "Acting for the Camera," a widely used text for both aspiring actors and veterans. At CBS, his responsibilities included supervising the creative elements of such prime-time dramatic series as "Murder She Wrote," "Cagney & Lacey," "Dallas," "The Equalizer" and "Magnum P.I."

Barr graduated from Washington University in 1942 with a bachelor's degree in education in Arts and Sciences.

Those interested should register at least 10 days before the workshop by calling 647-3758.

## Drama students hit the road, take 'Generation X' to Seattle

Several drama students will get a taste of life on the road when they take the play "Stories From Generation X (Y, Z...)" to the Seattle Fringe Theater Festival for three performances March 21-24.

The play premiered at Washington University in November as a Performing Arts Department in Arts and Sciences production. "Generation X (Y, Z...)" is the only collegiate production selected to perform this year at the prestigious 10-day festival of experimental theater.

Written by St. Louis-based playwright Joan Lipkin and directed by Annamaria Pileggi, artist-in-residence in performing arts, "Stories From Generation X (Y, Z...)" asks what it means to come of age at this moment in history. It explores such issues as sex in the '90s, getting a job, the rise of violence, and the impact of the media on society.

Lipkin said she is looking forward to resurrecting the work in Seattle, as well as incorporating some revisions she has made to the original production. She also praised the University for its support in sending the 17-member cast and crew to Seattle.

"It's an extraordinary opportunity for all of us, especially the students," Lipkin said. "It gives them a chance to see how the play will take root on different soil. We're excited about exploring the play's issues in Seattle, where audience members tend to be younger and more progressive."

Founded in 1991, the Seattle Fringe Theater Festival has become one of the country's premier theater events. Last year, about 20,000 people attended performances of about 70 mostly professional and semi-professional groups from around the country. This is the second time the

Performing Arts Department has been selected to perform at the festival. In 1994, the department staged "Bad Blood" and was the only collegiate group represented that year.

Pileggi said the experience will be invaluable for the students. "It teaches them not only what it's like to get a show back up on its feet but also what it's like to tour," she said. "They have to adjust to a new theater and a new audience. They're not going to have their parents and friends out in the audience."

Lipkin and Pileggi developed the play during a semester-long performing arts course titled "New Performance Workshop," which they team-taught last spring. Pileggi described the play as experimental and innovative.

"We wanted to push the envelope," Pileggi said. "We wanted to create new theatrical methods and to find new ways of telling old stories."

Lipkin said that like many coming-of-age stories, "Generation X (Y, Z...)" touches on generational issues common to any era. But its focus is on this particular moment in history for young adults, she noted. Exploring these timely issues in live theater is a way to reach out and build new, younger audiences, Lipkin said.

"We need to have young adults coming to the theater if it's going to continue as a living, breathing art form into the 21st century," Lipkin said.

The Washington University group will stage "Generation X (Y, Z...)" at the Pilgrim Center for the Arts in Seattle at 8 p.m. Thursday, March 21; 10 p.m. Friday, March 22; and 2 p.m. Sunday, March 24.

— Neal Learner

## Sports

Compiled by Mike Wolf, director, and David Moessner, assoc. director, sports information.

### Bears hand Aurora couple of defeats

The Washington University baseball team continued its best start in school history by winning two games last weekend against NCAA Central Region power Aurora (Ill.) University. With 5-4 and 6-5 victories over 18th-ranked Aurora, the Bears now have won 11 of their first 13 games. Illinois Wesleyan University (Bloomington) handed the Bears their only loss of the weekend by a 6-3 margin. At the recent University Athletic Association (UAA) Tournament, the Bears closed out tourney play March 12 with a 4-1 win over Brandeis University (Waltham, Mass.). No tournament champion was declared, however, because four games, two of which involved WU, were washed out.

Current record: 11-2 (3-1 UAA)

This week: 1 p.m. Friday, March 22, vs. Westminster College (Fulton, Mo.) (2), Kelly Field; 11 a.m. Saturday, March 23, vs. MacMurray College (Jacksonville, Ill.), Kelly Field; 1:30 p.m. Saturday, March 23, vs. Illinois Wesleyan, Kelly Field; 11 a.m. Sunday, March 24, vs. Simpson College (Indianola, Iowa), Kelly Field; 3:30 p.m. Sunday, March 24, vs. MacMurray, Kelly Field

### Women's tennis loses to Division I foe

Playing its third NCAA Division I foe of the spring, the women's tennis team dropped an 8-1 decision to Indiana State University (Terre Haute) on Saturday, March 16. The match lowered the Bears' spring record to 1-4.

This week: 3:30 p.m. Tuesday, March 19, vs. William Woods University (Fulton, Mo.), Tao Tennis Center; 9 a.m. Saturday, March 23, vs. Rhodes College (Rhodes College Invitational, Memphis, Tenn.); 1 p.m. Saturday, March 23, vs. Millsaps College (Jackson, Miss.) (at Rhodes Invitational); 9 a.m. Sunday,

March 24, vs. DePauw University (Greencastle, Ind.) (at Rhodes Invitational)

### Men's tennis squad opens home schedule

After playing three regional powers in the first two weeks of its season, the men's tennis team returns home to face the University of Chicago. The Bears opened the season by defeating local Division III rival Principia College (Elsah, Ill.) 5-2. The Bears lost to Ripon (Wis.) College 4-3 before falling 7-0 to Gustavus Adolphus College (St. Peter, Minn.).

Current record: 1-2

This week: 3 p.m. Thursday, March 21, vs. University of Chicago, Tao Tennis Center

### Bears honored by GTE for academics, athletics

Senior basketball player Kevin Folkl achieved GTE Academic All-America status, while six other student-athletes earned GTE all-district citations. Folkl, who has compiled a 3.21 cumulative grade-point average while majoring in finance, was named to the six-player third team in the College Division, which represents student-athletes from more than 900 schools. Folkl's teammates Brent Dalrymple (3.29 GPA in economics in Arts and Sciences and finance) and Gene Nolan (3.35 GPA in management) were included on the GTE second-team all-district squad. In addition, senior swimmer Joe Napoli (3.78 GPA in system science and mathematics in Arts and Sciences) and sophomore distance runner Jeremy Dubow (3.91 GPA in accounting and finance) have advanced to the national ballot after being named GTE first-team all-district in the At-Large category for fall and winter sports. On the women's side, senior soccer goalie Jennifer Donahoe (3.68 GPA in marketing and psychology in Arts and Sciences) and junior swimmer Christine O'Brien (3.79 GPA in political science in Arts and Sciences and marketing) were tabbed as GTE all-district second-teamers.



## Daly, Nussbaum to deliver lectures

The Assembly Series will offer lectures by two women next week. Feminist theologian Mary Daly will speak at 11 a.m. Wednesday, March 27, on "Recalling the Outrageous, Contagious Courage of Women." Martha Nussbaum, professor of law and ethics at the University of Chicago, will speak at 4 p.m. Thursday, March 28, on "Compassion in Public Life." Both lectures will be in Graham Chapel.

Following her lecture, Daly will participate in a reception/informal discussion



Martha Nussbaum

from 12:15 to 1:30 p.m. in the Women's Building Lounge. Nussbaum will give a colloquium, titled "A Feminist Critique of Liberalism," at 4:15 p.m. Monday, March 25, in the Alumni House living room. All of these events are

free and open to the public.

Daly, associate professor in the Department of Theology at Boston College, teaches feminist ethics. She joined the faculty there in 1966 as assistant professor and became associate professor in 1969 after students protested a decision to deny her tenure.

Daly's best-known works include "Beyond God the Father: Toward a Philosophy of Women's Liberation" (1973 and 1985), "Gyn/Ecology: The Metaethics of Radical Feminism" (1978 and 1990), "Pure Lust: Elemental Feminist Philosophy" (1984 and 1992) and the autobiographical "Outercourse: The Bedazzling Voyage" (1992).

Daly has been described as the world's foremost radical feminist philosopher. Her work has evolved from criticism of what she views as anti-feminist attitudes in the Roman Catholic Church to a more general focus on societal misogyny. Recognizing the influence of language on consciousness, Daly, in her later books, offers readers a new feminist vocabulary. Although her extensive use of word-play and typographical oddities has been criticized and her prose style decried for obscuring the value of her thought, critics also acknowledge great depths of passion, imagination and wit in her works.

Among the seven academic degrees Daly has earned are a doctorate in religion (1954) from Saint Mary's College in South Bend, Ind., and doctorates in sacred theology (1963) and philosophy (1965), both from the University of Fribourg in Switzerland.

Daly's lecture keynotes Women's Week and is co-sponsored by ADHOC (Against Discrimination and Hatred On Campus), the Assembly Series, Student Union, the Women's Week Committee, the Women's Resource Center and the Women's Studies Program in Arts and Sciences.

Nussbaum's lecture keynotes the John and Penelope Biggs Residency in the Classics, which was established in 1990. Nussbaum joined the University of Chicago in 1995. Before that, she was University Professor and professor of philosophy, classics and comparative literature at Brown University from 1989 to 1995.

Nussbaum's books include "The Fragility of Goodness: Luck and Ethics in Greek Tragedy and Philosophy" (1986), "Love's Knowledge: Essays on Philosophy and Literature" (1990), "Aristotle's De Motu Animalium" (1978) and the forthcoming "Poetic Justice: The Literary Imagination and Public Life" and "Upheavals of Thought: A Theory of the Emotions."

Included in Nussbaum's many honors are Danforth Graduate and Guggenheim fellowships. She was elected a fellow of the American Academy of Arts and Sciences in 1988.

After earning a doctorate in classical philology from Harvard University in 1975, Nussbaum began her academic career there and became associate professor in 1980. In 1984, she joined Brown's faculty as associate professor of philosophy and classics, rising to full professor the following year. She was named David Benedict Professor and professor of philosophy, classics and comparative literature in 1987.

For more information, call 935-5285.



### Chancellor makes the rounds

Chancellor Mark S. Wrighton, Ph.D., talks with senior Alex White, left, sophomore Amy Dwyer, center, and graduate student Stephanie Cesna during a luncheon March 13 at McMurphy's Grill in St. Louis. Wrighton served as the celebrity host at the luncheon, which attracted 157 Washington University students, faculty, staff and alumni. Tom Gullickson, manager at McMurphy's, said the crowd was one of the largest for a celebrity host luncheon. McMurphy's is owned and operated by St. Patrick's Center and serves as a training facility for mentally ill and homeless individuals who want to make positive changes in their lives.

## German literature from 1945-1995 focus of seminar

German literature from 1945 to 1995 is the focus of the 13th biennial St. Louis Symposium on German Literature to be held March 29-31 at various Washington University locations, including the West Campus Conference Center.

The Department of Germanic Languages and Literatures in Arts and Sciences is hosting the event. Sessions, excluding the dinners, are free for members of the University community.

Literary scholars from the United States and Germany will attend the symposium, titled "Zeitenwenden/Wendezeiten: A Half-century of German Literature, 1945-1995." The scholars will re-evaluate the convergence of literature, culture and politics during this period, which included the fall of fascism; the building and the tearing down of the

Berlin Wall; and German unification and its aftermath.

Robert K. Weninger, Ph.D., associate professor of German and of comparative literature in Arts and Sciences, and Brigitte Rossbacher, Ph.D., assistant professor of German, are the conference organizers. "The main predicament for writers in postwar Germany was how to write after Auschwitz," said Weninger. "How could the language of the perpetrators ever again be used to write poetry? And what changes did poetical language have to undergo to be viable in post-fascist Germany? Fifty years later and five years after German reunification, the question again revolves around the intersection of politics and poetry to ask how many and to what degree did East German authors collude with the Communist authorities."

German writer Barbara Honigmann, a writer-in-residence in the German department, will read from her work during a pre-symposium event at 8 p.m. Thursday, March 28, at Stix International House. The symposium begins at 1 p.m. March 29 in the Women's Building Lounge, where Chancellor Mark S. Wrighton, Ph.D., and Robert E. Thach, Ph.D., dean of the Graduate School of Arts and Sciences, will welcome the group. The speaker for the March 30 banquet at 7:30 p.m. at the Holiday Inn Clayton Plaza is John E. Woods, an award-winning translator of well-known German authors. Several faculty members in the German department will present papers during the symposium.

For more information, call 935-5106.

## MAC members hope to reach out to other college students — from page 1

when he lived in University City with his parents, Charles Brown, Ph.D., and Shirley Brown, who both received master's degrees in education in Arts and Sciences from the University and now work as administrators for the St. Louis Public Schools.

In the second grade, Robbie Brown was one of the few black students in the Clayton schools — before St. Louis' voluntary-desegregation plan was established. The family later moved to the city of St. Louis, where Brown continued attending Clayton schools through the desegregation program.

"The teachers challenged me, and I was motivated," Brown said of his experience in the Clayton schools. "Of course, I had parents who were motivating me as well. But it was a culture shock. Not so much that there were white people and I was a black person. But I think it was because I lived in a neighborhood where there were African-American children. I went to school where there were no African-American children. At first, it was hard for me to balance those two settings. I felt on my own. It wasn't until a little while later that I developed some real friends."

Brown received help from several black role models — teachers and administrators who encouraged black students to pursue their academic dreams. Gant, who attended an integrated high school in Mobile, Ala., also benefited from black role-models.

MAC wants to expand the mentoring project to other schools besides Clayton. The group eventually plans to reach out to black male students in districts such as the St. Louis Public Schools. They also hope to arrange visits by Clayton students to the Washington University campus and to various local sites and recruit some of the high schoolers to serve as "big brothers" to the children at St. John's.

In addition, Gant hopes to build a cohesive relationship between MAC and

black men attending other colleges and universities in St. Louis.

Brown, Davis and Gant believe the benefit concert will assist them in building a coalition of black male college students. For the event, they are attempting to book such big-name performers as Brandy, Monica and Biggie Smalls.

Proceeds from the event will benefit Arts Connection, an art program for children living in St. Louis public housing, and the George Washington Carver House and Kinloch community centers. Bob Hansman, visiting assistant professor of architecture, heads the art program.

— Carolyn Sanford

## Campus Watch

The following incidents were reported to the University Police Department from March 11-17. Readers with information that could assist the investigation of these incidents are urged to call 935-5555. This release is provided as a public service to promote safety-awareness on campus.

### March 11

10:06 a.m. — A cash-card machine, valued at \$800, was stolen from a copier in Lee Residence Hall.

5:59 p.m. — Two rings and a purse — valued at \$615 — were stolen from Rutledge Residence Hall.

### March 12

4:34 p.m. — Stereo equipment was stolen from KWUR radio station.

### March 13

11:09 a.m. — Two credit cards were stolen from a purse in Givens Hall.

3:30 p.m. — A non-student was arrested in Shepley Residence Hall for allegedly stealing \$35 from a janitor's closet.

### March 14

2:27 p.m. — A student reported being grabbed on the buttocks in Liggett Residence Hall.

6:16 p.m. — A student reported that a bicycle, valued at \$600, was stolen from the west side of Eliot Residence Hall.

### March 15

6:48 p.m. — University Police responded to a report of a fire in Millbrook Square apart-

ments. A curtain caught fire from a halogen light, causing minor damage. A student extinguished the fire.

### March 16

5:42 a.m. — Two students reported that an unclothed male entered a Shepley Residence Hall room and left when confronted.

10:47 a.m. — A bicycle, valued at \$200, was reported stolen from a fraternity house. It later was found and was extensively damaged.

University Police also responded to two reports of trespassing at the new School of Law building construction site; one report of burglary and vandalism at a fraternity house; one report of a peace disturbance at Wydown Residence Hall; and one report of a harassing telephone call at Koenig Residence Hall.

### Crime Alert

Due to reports of armed and strong-arm robberies near the Washington University Medical Center and in the Central West End, members of the University community are urged to take safety precautions and report any suspicious persons or activities in this area to the St. Louis Police Department (911) or to the School of Medicine's Protective Services (362-4357).



# For The Record

*For The Record contains news about a wide variety of faculty, staff and student scholarly and professional activities.*

## Of note

**Elizabeth Childs**, Ph.D., assistant professor of art history and archaeology in Arts and Sciences, received a 1996-97 University Teachers Fellowship from the National Endowment for the Humanities and a Samuel H. Kress Senior Fellowship from the Center for the Advanced Study of the Visual Arts at the National Gallery of Art. The fellowships support her research project titled "In Search of Paradise: Painting and Photography in Tahiti in the Time of Paul Gauguin." ...

**Annelise Mertz**, professor emerita of dance and founder and former director of the dance division in Arts and Sciences, created a new choreography for the Pimsleur Dance and Theatre Company in Columbus, Ohio. During the premiere, Suzanne Costello, co-artistic director of the company and a 1977 University alumna, performed the solo dance, titled "A Day in My Life." ...

**Andrey S. Shaw**, M.D., assistant professor of pathology, received a \$741,706 four-year grant from the National Cancer Institute for a project on

"The Role of P62/P68 in Signal Transduction."

## Speaking of

**Susan M. Binzer**, coordinator of the Hearing Rehabilitation and Cochlear Implant Program in the Department of Otolaryngology, spoke on "Increasing Patient Compliance Through Family Involvement" at the Illinois Speech-Language-Hearing Association's annual convention in Chicago. ...

Several members of the Department of Speech and Hearing participated in the American Speech-Language-Hearing Association's meeting in Orlando, Fla. The participants were: **William W. Clark**, Ph.D., professor of physiological acoustics and interim director of research at the Central Institute for the Deaf (CID); **Ann E. Geers**, Ph.D., associate professor of psychology and director of clinical services at CID; **Jean S. Moog**, associate professor of education of the hearing impaired and director of deaf education at CID; and **Nancy Tye-Murray**, Ph.D., associate professor of audiology and a research scientist at CID. ...

**Mary-Jean Cowell**, Ph.D., associate professor of dance and coordinator of the dance program in Arts and Sciences, spoke

as part of two lecture demonstrations on modern dance pioneer Michio Ito at The Japan Information and Culture Center, Embassy of Japan, in Washington, D.C. Cowell also participated in a similar program at Dance Place, a well-known dance venue in Washington. ...

**David Felix**, Ph.D., professor emeritus of economics in Arts and Sciences, delivered two lectures on "Financial Globalization and the Tobin Tax Proposal" at the Universidad Nacional de Mexico in Mexico City.

## Making the news

The Christian Science Monitor published an op-ed piece written by **Stephen H. Legomsky**, J.D., D.Phil., the Charles F. Nagel Professor of International and Comparative Law. The article called on Congress to establish an independent national refugee board. ...

**Russell D. Roberts**, Ph.D., director of the Management Center in the John M. Olin School of Business, was quoted in a Wall Street Journal article. The piece, titled "Shift Into Reverse: Ban on Mexican Trucks in U.S. Interior Shows Rise of Protectionism," noted how election-year politics can change American trade policies. "In terms of symbolism, it's an ugly

precedent to say we'll implement our trade agreements only when it's politically convenient," said Roberts.

## To press

**Lucian Krukowski**, Ph.D., professor emeritus of philosophy in Arts and Sciences, wrote an article titled "Schopenhauer and the Aesthetics of Creativity" that is featured in a 1996 anthology titled "Schopenhauer, Philosophy and the Arts" published by Cambridge University Press. ...

**A. Peter Mutharika**, J.S.D., professor of law, wrote an essay titled "The Role of the United Nations Security Council in African Peace Management" that is scheduled to be published in this month's issue of the Michigan Journal of International Law.

## Guidelines for submitting copy:

Send your full name, complete title, department, phone number, and highest-earned degree, along with a typed description of your noteworthy activity, to For The Record, c/o Carolyn Sanford, Campus Box 1070, or p72245cs@wuvmd.wustl.edu. Items must not exceed 75 words. For more information, call Sanford at 935-5293.

## Center receives grant to study multiparty political systems

The Center in Political Economy in Arts and Sciences has received a \$125,000 National Science Foundation grant to study multiparty political systems in Israel and in European countries, announced the center's director, Norman J. Schofield, Litt.D.

Schofield, the Dr. William Taussig Professor of Political Economy in Arts and Sciences, is the principal investigator for the study, which is titled "Coalition Politics." The co-investigators are Robert P. Parks, Ph.D., associate professor of economics in Arts and Sciences, and Itai Sened, Ph.D., a Washington University lecturer in political science and a faculty member at Tel Aviv University in Israel. The project runs through August 1997.

Sened, who is visiting the University this semester, has been working on projects with both the center and the Department of Political Science in Arts and Sciences. A paper on political events in Israel since 1992 that Schofield and Sened wrote with two other collaborators will be presented at an international conference on game theory and politics in Galicia, Spain, in July.

The Center in Political Economy also is organizing several academic conferences to be held at the University.

## Former philosophy professor is focus of series on religion

A five-part series on "The Wisdom of Faith" with journalist Bill Moyers will highlight the work of Huston Smith, Ph.D., a former professor of philosophy in Arts and Sciences. The series, which will be shown locally on KETC-TV Channel 9, begins at 5 p.m. March 31 and continues at the same time on Sundays through April 28.

Smith, an expert on comparative religions, was a member of the Washington University faculty from 1947 to 1958. He is now a professor at the University of California, Berkeley.

In "The Wisdom of Faith With Huston Smith: A Bill Moyers Special," the journalist talks with Smith about the similarities and differences of the world's six major religions: Hinduism and Buddhism; Confucianism; Christianity and Judaism; and Islam. The programs, which are embellished with worldwide art, architecture, music and poetry, are designed to help viewers understand the common thread of religious experience.



## MTV asks students to 'Choose or Lose'

MTV's custom-designed touring "Choose or Lose" bus stopped outside the Umrathskeller on March 12 to register students to vote. The 45-foot-long bus, which weighs about 40,000 pounds, is part of the music television station's "Choose or Lose" campaign to educate young viewers about the political process and the upcoming presidential election. The exterior of the bus features more than 100 quotes from prominent individuals.

## Bonnie Kruger's elegant costumes can take the heat

Designer Bonnie Kruger doesn't get ruffled when people sweat all over her work.

The lavish costumes she creates are built to withstand hot lights and fiery actors on stages both here and abroad. Kruger is an artist-in-residence in the Performing Arts Department in Arts and Sciences. She recently returned from Marseilles, France, where her costumes were used in the Marseilles Opera's production of "Radamisto" by George Frideric Handel.

Kruger's extravagant 18th-century baroque costumes received high praise from critics and singers alike. "They loved them," Kruger said of cast members in the prestigious opera company, which boasts some of the finest singers in Europe. "They (the costumes) really helped the singers get into character."

During her nearly one-month stint in France, Kruger oversaw fittings and alterations to 18 costumes, which she made in St. Louis for a 1993 production of "Radamisto" staged in Germany. She also worked with singers in the Marseilles Opera during rehearsals, showing them how to move in the full

and flowing garments. "These need a bit of care," Kruger said of the costumes that cost about \$2,500 each in material alone. One costume takes a week to complete and easily can cost up to \$5,000, she said.

Because of such expenses, true baroque operas seldom are performed, Kruger noted. One place the art form does flourish is at the Göttingen Handel Festival in Germany, where Kruger has been designing costumes for the past six years. She became the designer at the request of Nicholas McGegan, festival director and former director of the historical performance practice program in the Department of Music in Arts and Sciences.

Kruger, a native of Syracuse, N.Y., received a bachelor's degree in theater design in 1978 from Syracuse University and a master's degree in costume design in 1983 from the University of Illinois in Urbana-Champaign. The designer has a special affinity for the 18th-century sumptuous garments, made with glittering fabrics and bedazzled with trim. "The early 1700s had some wonderful lines to their clothes. I find the whole period incredibly exciting," said Kruger.

Her latest project is designing the



Costume designed by Bonnie Kruger.

costumes for the Performing Arts Department's production of "Romeo and Juliet," which will be staged in Edison Theatre April 12-14 and 19-21.

— Neal Learner



# Opportunities & personnel news

## Hilltop Campus

The following is a partial list of positions available on the Hilltop Campus. Information regarding these and other positions may be obtained in the Office of Human Resources, Room 126 North Brookings Hall, or by calling 935-5990.

**Operations Assistant 960190.** Center for the Study of American Business. Requirements: high school graduate; some college preferred; general knowledge of computers; conscientious; detail-oriented. Schedule: part time. Application required.

**Administrative Assistant 960192.** Center for the Study of American Business. Requirements: bachelor's degree or equivalent work experience; bookkeeping experience; specialized computer skills, including word processing, database-management and spreadsheet programs; excellent grammatical

skills; ability to work clearly and concisely. Application required.

**Area Coordinator-Residence Halls 960193.** Office of Residential Life. Requirements: bachelor's degree; master's degree in higher education or related field preferred; ability to communicate effectively with students, faculty, administrators and parents; ambitious, responsible and able to work effectively both as a member of a team and independently; initiative; creativity; enthusiasm; commitment; excellent program-coordination skills; residence hall and student affairs experience preferred. Application required.

**Deputized Police Officer 960194.** University Police. Requirements: high school graduate with some college; completion of 640 hours of approved academy training to be certified; must meet current police officer standards and training commission standards for certification as a peace officer in a first-class Missouri county; ability to qualify for deputization as a police officer by the St. Louis

County Police Department; valid Missouri driver's license. Application required.

## Medical Campus

The following is a partial list of positions available at the School of Medicine. Employees who are interested in submitting a transfer request should contact the Human Resources Department of the medical school at 362-7197 to request an application. External candidates may call 362-7195 for information regarding application procedures or may submit a résumé to the human resources office located at 4480 Clayton Ave., Campus Box 8002, St. Louis, MO, 63110. Please note that the medical school does not disclose salary information for vacancies, and the office strongly discourages inquiries to departments other than human resources.

**Education Coordinator 960715-R.** Human Studies Committee. Re-

quirements: experience with word processing and desktop publishing; effective spoken, written and verbal communication skills; ability to work independently. Responsibilities include development of educational framework for seminars, conferences and in-service training programs; production of newsletters, slides and overheads; and training of personnel.

**Programmer Analyst I 960724-R.** Washington University Shared Bill-

ing and Collection Services. Requirements: bachelor's degree or equivalent in related field; two to three years application-support experience; one year programming experience; working knowledge of physician billing systems, preferably IDX, and knowledge of MUMPS and C language. Responsibilities include providing programming and related user support, vendor interfacing and programming maintenance services.

**Staff Pharmacist 960726-R.** Barnard Cancer Center. Requirements: graduate of an accredited college of pharmacy; registered in Missouri; oncology experience. Responsibilities include managing the daily operation of the BCC pharmacy, supervising pharmacy technicians, interpreting and dispensing medication orders, participating in educational programs, and ensuring that daily operations meet state and federal regulations.

## New sexual harassment resources available

The Office of Human Resources is updating the Washington University sexual harassment policy. In addition, to help educate supervisors, human resources has added a sexual harassment prevention program to its training and development catalog.

The revised policy will introduce the new roles of coordinator and adviser for the Hilltop and Medical campuses. These individuals will assist the University in efforts to eliminate sexual harassment from the campuses, said Ann B. Prenatt, director of employee relations and the Hilltop coordinator of the prevention program.

There will be two coordinators, one each on the Hilltop and Medical campuses, and six advisers, three each on the Hilltop and Medical campuses. Additionally, various schools and Central Fiscal Unit departments on the Hilltop Campus have appointed liaisons who also will act as resources for those who have concerns and questions.

"There is a fair amount of overlap in

the responsibilities that will be handled through the newly created roles, with the common focus being on providing service and education," Prenatt said. "To help create a user-friendly process for staff, faculty and students, we have added these extra avenues by which they can access information and assistance."

The coordinators, advisers and liaisons will help provide services that include clarification of the sexual harassment policy, suggestions to stop unwanted behavior, interviewing complainants, and providing general support to the University community.

The updated sexual harassment policy will list the names and telephone numbers of the coordinators and advisers. The names and telephone numbers of the Hilltop liaisons are available through the Hilltop human resources office. The University's sexual harassment policy will be published in its entirety in a summer issue of the Record. The University adopted its sexual harassment policy in 1980.

## Spending plans save employees tax dollars

Employees who know they will spend hundreds of dollars in out-of-pocket medical or child-care expenses may find substantial savings by enrolling in the health- or child-care spending plans. Doing so allows employees to set aside money from their paychecks on a pre-tax basis to pay for such expenses.

"The benefit is a real tax savings to employees," said Thomas W. Lauman, the University's director of benefits in the Office of Human Resources on the Hilltop Campus.

All University employees who work at least 20 hours a week are eligible. They may participate in either the health- or child-care spending plan or both.

The health-care spending account is best suited for employees who know they will have to pay for medical expenses not covered by their insurance plans, Lauman said.

These include deductibles and co-payments, prescription medications not covered by insurance, dental charges above the annual maximum of \$1,000, wheelchairs, and eyeglasses and contact lenses.

Money in the spending plan may not be used for cosmetic surgery, funeral expenses or expenses that are reimbursed by any medical or dental plan.

Employees who participate are allowed to deduct between \$10 and \$200 from their paychecks each month. The money is set aside before federal, state and Social Security taxes are deducted, allowing most employees to save up to 40 percent on unreimbursed health and dental expenses.

The child-care spending account is designed for parents who have one or more children younger than 13 in day care or after-school care, Lauman said. Employees who participate may contribute up to \$5,000 annually.

For example, a married employee with two children and a gross annual income of \$17,500 would realize an annual tax savings of \$640 by making monthly contributions of \$25 to the health-care spending plan and \$166.67 to the child-care spending plan.

Employees enrolled in either plan must submit original receipts or documents to be reimbursed. Participation is on an annual basis beginning each January. When employees enroll, they must decide how much money they want to contribute annually to either plan. Employees are not allowed to modify or discontinue contributions unless there is a change in family status. Some reasons for status changes are marriage, birth, divorce or a spouse's loss or change in employment.

Also, any money contributed to either spending account must be used for expenses incurred during the calendar year. Money left in the account at the end of the year must be forfeited.

Enrollment forms are available at the benefits office on your campus. To enroll or for more information about the spending plans, call Mary Stull on the Hilltop Campus at 935-5907 or Lanelle Coleman on the Medical Campus at 362-7204.

— Caroline Decker.

## Q&A

### Addressing employee questions concerning the Washington University community

**Q:** With steps being taken to streamline the payroll process, will employees on the monthly payroll be able to become part of the biweekly payroll in the near future?

**A:** The University's payroll-streamlining initiative was undertaken for the purpose of providing improved services at reduced costs. If the monthly payroll were to be discontinued in favor of a biweekly pay schedule, it permanently would remove about two weeks of cash flow of about \$11 million from our investable balances. Thus, this

would be a very costly service improvement. That doesn't mean this idea will not be considered in the future; it means that right now there are other opportunities to enhance services and at the same time reduce costs to the University, and these have top priority.

— William H. Witbrodt, assistant controller

Submit questions about the University, which have broad appeal, to Q&A, c/o Michael Slatin, Campus Box 1070, or p72245ms@wuvmd.wustl.edu. Questions will be answered by the appropriate administrators. Though employee questions will appear anonymously in the Record, please submit your full name, department and phone number with your typed question. For information, call Slatin at 935-6603.

## NEA Chairman Jane Alexander to keynote Commencement — from page 1

confirmation by the U.S. Senate, she was sworn into office by Supreme Court Justice Sandra Day O'Connor on Oct. 8, 1993.

Since becoming chairman, Alexander has visited more than 130 communities in all 50 states and Puerto Rico. In more than 150 public speeches, she has outlined to thousands of people her vision for the agency. She has met personally with members of Congress and with governors, mayors, state legislators, artists and community leaders throughout the nation. Taking up President Clinton's challenge to "renew America," Alexander has spoken out about how the arts can contribute to education reform and community-building.

Under Alexander's leadership, the NEA began a partnership with the Corporation for National Service to create the "Writers Corps" as part of the national force of AmeriCorps volunteers. The NEA also has entered into partnerships with the U.S. Department of Transportation and other agencies to encourage design excellence at the federal level. Alexander also has strengthened the NEA's long-standing relationship with the

U.S. Department of Education for arts-education research and development.

Alexander signed an agreement with Canada and Mexico to begin a three-way artistic-exchange program in 1994. As part of the administration's goal for streamlining government, Alexander has initiated a number of internal reforms and reorganizations at the agency.

Six months after taking office, Alexander convened the first national arts conference organized by the federal government. More than a thousand artists and administrators attended "Art-21: Art Reaches Into the 21st Century" in Chicago to share information and explore new ideas about the future of the arts in America. From this dialogue and her exploration of the state of the arts across the country, Alexander developed her priorities for investing in communities, education, new technology, preservation of our heritage, and partnerships for the arts.

For her leadership, Alexander has received a number of honors, including the 1995 Montblanc de Culture North American Award, which she donated to the Writers Corps, and the Common Wealth Award

for bringing the arts to the American people. She is a much sought-after public speaker and has given commencement addresses at The Juilliard School; the University of California, Los Angeles, School of the Arts; the North Carolina School for the Arts; the University of Pennsylvania; and Princeton University.

Prior to becoming the NEA's chairman, Alexander served as an effective and articulate advocate for a number of worthwhile causes, including the National

Stroke Association, Women's Action for New Directions and the Wildlife Conservation Society. In recognition of her leadership, she received the Living Legacy: Jehan Sadat Peace Award in 1988.

Alexander attended Sarah Lawrence College in Bronxville, N.Y., and the University of Edinburgh in Scotland. She is married to director Ed Sherin and is step-mother to Tony, Geoffrey and Jonathan. Her son, Jace Alexander, is a stage and film director.

## Growth method turns down heat — from page 1

materials, which do not allow crystal growth from conventional solvents at low temperatures.

But Buhro makes a solution suspension of indium and indium-gallium nano-sized droplets. The droplets are the sites from which the semiconductor crystal compounds indium phosphide, gallium arsenide and indium arsenide (type III-V semiconductors) nucleate and grow.

"We refer to this as the solution-liquid-solid mechanism, a three-phase system where the chemistry occurs in

solution, then elements of the semiconductors are deposited into the liquid — the molten metal droplets — and the product crystallizes out as a solid," Buhro explained. "One of the important goals in materials chemistry is to turn down the heat on solid-state synthesis. This method expands the range of possibility for these important semiconductors. While this works now with one family of semiconductor compounds, the search is on to see how far this technique can be extended to other materials." — Tony Fitzpatrick